

PATENT APPLICATION

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re application of

Docket No: Q81096

Yoshio TERADA, et al.

Appln. No.: 10/823,654

Group Art Unit: 17961

Confirmation No.: 4963

Examiner: Lorna M. Douyon

Filed: April 14, 2004

For: CLEANING SHEET, CARRYING MEMBER WITH A CLEANING FUNCTION AND METHOD OF
CLEANING SUBSTRATE PROCESSING EQUIPMENT

SUBMISSION OF APPEAL BRIEF

MAIL STOP APPEAL BRIEF - PATENTS

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Submitted herewith please find an Appeal Brief. The statutory fee of \$540.00 is being remitted. The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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65565

CUSTOMER NUMBER

Date: January 28, 2011

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APPEAL BRIEF UNDER 37 C.F.R. § 41.37

MAIL STOP APPEAL BRIEF - PATENTS

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

In accordance with the provisions of 37 C.F.R. § 41.37, Appellant submits the following:

Table of Contents

I.	REAL PARTY IN INTEREST	2
II.	RELATED APPEALS AND INTERFERENCES	3
III.	STATUS OF CLAIMS.....	4
IV.	STATUS OF AMENDMENTS.....	5
V.	SUMMARY OF THE CLAIMED SUBJECT MATTER.....	6
VI.	GROUND OF REJECTION TO BE REVIEWED ON APPEAL	8
VII.	ARGUMENT.....	9
VIII.	CONCLUSION.....	15
	CLAIMS APPENDIX	16
	EVIDENCE APPENDIX	18
	RELATED PROCEEDINGS APPENDIX	19

I. REAL PARTY IN INTEREST

NITTO DENKO CORPORATION having a business address of Osaka, Japan is the real party in interest.

II. RELATED APPEALS AND INTERFERENCES

Appellants, Appellants' legal representative and the Assignee of this application are not aware of any other appeals or interferences that will directly affect, or be affected by, or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 5, 8-9, 20 and 23 are pending in the application.

Claims 1-4, 6-7, 10, 17-19 and 21-22 have been canceled.

Claims 11-16 are withdrawn from consideration.

Claims 5, 8-9, 20 and 23 are rejected.

IV. STATUS OF AMENDMENTS

The status of all amendments filed after final rejection is as follows:

The claims were amended in a Supplemental Amendment under 37 C.F.R. § 1.116 filed on January 4, 2010. The Amendment was entered via a Request for Continued Examination filed on January 20, 2010.

There are no other outstanding amendments to the claims or to the specification in the present application.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

Independent claim 5 is directed to a carrying member with a cleaning function, comprising a carrying member and a cleaning sheet comprising a support, a cleaning layer provided on one side of the support, an adhesive layer provided on the other side of the support, and a releasable protective film laminated directly on the cleaning layer. *See e.g.*, page 7, lines 16-24; page 8, lines 5-12 and page 37, lines 4-19 of the specification. The cleaning layer comprises a polyimide resin which is heat-resistant, and a releasable protective film laminated on the cleaning layer, wherein each of the relative intensities of the fragment ions of CH_3Si^+ , $\text{C}_3\text{H}_9\text{Si}^+$, $\text{C}_5\text{H}_{15}\text{Si}_2\text{O}^+$, $\text{C}_5\text{H}_{15}\text{Si}_3\text{O}_3^+$, $\text{C}_7\text{H}_{21}\text{Si}_3\text{O}_2^+$, CH_3SiO^- , $\text{CH}_3\text{SiO}_2^-$ and Si^+ in the cleaning layer, when the protective film is peeled off the cleaning layer, is 0.1 or less according to time-of-flight secondary ion mass spectrometry, relative to C_2H_3^+ in the case of positive ion or O^- in the case of negative ion. *See e.g.*, page 7, lines 16-24 and page 24, lines 12-19 of the specification. The cleaning layer has a tensile modulus of 10 MPa or more as determined according to JIS K7127 and exhibits an adhesive strength of 0.2N/10 mm width or less when peeled off a silicon wafer at an angle of 180° as determined according to JIS Z0237. *See e.g.*, page 29, lines 14-18 of the specification. The cleaning sheet is laminated on the carrying member through an adhesive layer. *See e.g.*, page 8, lines 14-17 of the specification. The carrying member is a semiconductor wafer or base for a flat panel display. *See e.g.*, page 35, lines 1-7 of the specification. The releasable protective film is a polyolefin-based film comprising polyethylene, polypropylene, polybutene, polybutadiene or polymethylpentene. *See e.g.*, page 17, line 25 to page 8, line 4 of the specification.

Independent claim 8 is directed to a carrying member with a cleaning function, comprising a carrying member and a cleaning layer comprising a polyimide resin which is heat-resistant provided on at least one side of the carrying member, wherein each of the relative

intensities of the fragment ions of CH_3Si^+ , $\text{C}_3\text{H}_9\text{Si}^+$, $\text{C}_5\text{H}_{15}\text{Si}_2\text{O}^+$, $\text{C}_5\text{H}_{15}\text{Si}_3\text{O}_3^+$, $\text{C}_7\text{H}_{21}\text{Si}_3\text{O}_2^+$, CH_3SiO^- , $\text{CH}_3\text{SiO}_2^-$ and Si^+ in the cleaning layer is 0.1 or less according to time-of-flight secondary ion mass spectrometry, relative to C_2H_3^+ in the case of positive ion or O^- in the case of negative ion. *See e.g.*, page 9, lines 1-9 and page 24, lines 12-19 of the specification. The cleaning layer has a tensile modulus of 10 MPa or more as determined according to JIS K7127 and exhibits an adhesive strength of 0.2N/10 mm width or less when peeled off a silicon wafer at an angle of 180° as determined according to JIS Z0237. *See e.g.*, page 29, lines 14-18 of the specification. The carrying member is a semiconductor wafer or base for a flat panel display. *See e.g.*, page 35, lines 1-7 of the specification. The releasable protective film is laminated directly on the cleaning layer and the releasable protective film is a polyolefin-based film comprising polyethylene, polypropylene, polybutene, polybutadiene or polymethylpentene. *See e.g.*, page 17, line 25 to page 8, line 4 and page 37, lines 4-19 of the specification.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The grounds of rejection to be reviewed, including the statute applied, the claims subject to each rejection and the references relied upon by the examiner are as follows:

(1) claims 5, 8-9, 20 and 23 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Terada et al. (WO 03/052045) in view of Namikawa et al. (WO 02/05975); and

(2) claims 5, 8-9, 20 and 23 are rejected on the ground of nonstatutory obviousness-type double patenting rejection over claim 14 of U.S. 7,575,790 in view of Namikawa.

VII. ARGUMENT

A. The rejection of claims 5, 8-9, 20 and 23 under 35 U.S.C. §103(a) as allegedly being unpatentable over Terada et al. (WO 03/052045) in view of Namikawa et al. (WO 02/05975) should be reversed.

To reach a proper determination under 35 U.S.C. §103, the Examiner must step backward in time and into the shoes worn by the hypothetical "person of ordinary skill in the art" when the invention was unknown and just before it was made. In view of all factual information, the Examiner must then make a determination whether the claimed invention "as a whole" would have been obvious at that time to that person. Knowledge of Applicant's disclosure must be put aside in reaching this determination, yet kept in mind in order to determine the "differences," conduct the search and evaluate the "subject matter as a whole" of the invention.

The U.S. Supreme Court has clarified the standards applicable to obviousness. *See generally KSR Int 'l Co. v. Teleflex Inc.*, 550 U.S. at __, 82 USPQ2d at 1396 (2007). As reiterated in *KSR*, "a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art." *KSR*, 550 U.S. at 82 USPQ2d at 1396. Instead, the key to supporting any rejection under 35 U.S.C. §103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. Thus, after *KSR*, "rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *Id.* at 1396. *KSR* also reiterated that an evaluation for obviousness cannot be based on hindsight. *Id.* at 1397; MPEP §2142 states that "impermissible hindsight must be avoided and the legal conclusion [of obviousness] must be reached on the basis of the facts gleaned from the prior art."

It is respectfully submitted that the Examiner has not established a *prima facie* case of

obviousness.

The Examiner rejects the claims based on Terada and Namikawa. Specifically, the Examiner asserts that Terada teaches a cleaning label which comprises a cleaning layer 3 and a release film 4 provided on one side of a backing 2 and an ordinary adhesive layer 5 provided on the other side of the backing 2 and is peelably provided on the separator 1 with this adhesive layer 5 interposed therebetween; and in operation, the cleaning label is peeled off the separator 1, and then stuck to a conveying member such as semiconductor wafer (see page 29, lines 9-23, Figures 1 and 2). *See* page 2 of the Final Office Action dated June 29, 2010. The Examiner recognizes that Terada fails to disclose a cleaning layer comprising a polyimide resin and where each of the relative intensities of the recited fragment ions in the cleaning layer, when the protective film is peeled off the cleaning layer, is 0.1 or less. *See id.* at bottom of page 3 to top of page 4.

Thus, the Examiner relies on Namikawa as teaching a cleaning layer that can be made from rubbers, natural resins, synthetic resins such as polyethylene terephthalate, phenol resin, polyester resin, alkyl resin, epoxy resin, polycarbonate, cellulose nitrate, poly(vinylidene fluoride), polypropylene, polyimide, nylon 6, nylon 66, poly(methyl methacrylate), methyl methacrylate/styrene copolymer, ethylene fluoride/propylene copolymer, etc. (see page 5, line 19 to page 6, line 8). *See id.* at page 4.

The Examiner takes the position that it would have been obvious to replace the cleaning layer comprising (meth)acrylic acid of Terada with a cleaning layer comprising polyimide resin because the substitution of art recognized equivalents as shown by Namikawa is within the level of ordinary skill in the art. In addition, the Examiner asserts that simple substitution of one known element for another would achieve the predictable result of providing an effective cleaning layer which causes no contamination on the conveying site. Furthermore, the

Examiner asserts that one of ordinary skill in the art would have reasonably expected each of the relative intensities of the recited fragment ions in the cleaning layer, when the protective film is peeled off the cleaning layer, to be within those recited, i.e., 0.1 or less, because Terada teaches that the amount of silicone attached to said cleaning layer when the separator is peeled off said cleaning layer is 0.005 g/m^2 or less, as calculated in terms of polydimethylsiloxane (see page 6, line 19 to page 7, line 9; page 8, lines 13 to page 10, line 21). *See id.* at page 4.

Appellants respectfully disagree and submit that one of ordinary skill in the art would not replace the cleaning layer of Terada with a polyimide and the Examiner has failed to provide a clear rationale as to why one of ordinary skill in the art would do so.

Terada discloses that its cleaning layer exhibits a 180° peel adhesion of 0.20 N/10 mm or less, preferably from about 0.010 to 0.10 N/10 mm; otherwise, the cleaning layer adheres to the non-cleaning area in the device during conveyance, possibly causing conveyance troubles. Thus, an important feature of Terada is that the cleaning layer exhibit a 180° peel adhesion of 0.20 N/10 mm or less.

Although Namikawa may mention the use of polyimide, among other materials, at page 5, line 19 to page 6, line 8, a person of ordinary skill in the art would not have been led to replace the cleaning layer comprising (meth)acrylic acid of Terada with a cleaning layer comprising polyimide resin.

Namikawa teaches the same problem as Terada and teaches the use of materials, such as acrylic polymers on page 11. That is, Namikawa also discloses that the 180° releasing adhesive force is not more than 0.20 N/10 mm, preferably about 0.010 to 0.10 N/10 mm. *See* page 10, lines 7-9. As specific materials to achieve the desired adhesive force, Namikawa discloses the use of acrylic polymers that contain (meth)acrylic acid and/or (meth)acrylic ester (i.e., the same

polymers used in Terada). *See* page 11, lines 3-7.

There is no mention of the use of polyimide as a material suitable to obtain a releasing adhesive force in the desired range on pages 10-11. In fact, there is no disclosure in Namikawa that the use polyimide provides a cleaning layer exhibit a 180° peel adhesion of 0.20 N/10 mm or less.

Given the object in Terada for the cleaning layer to exhibit a 180° peel adhesion of 0.20 N/10 mm or less, and the teaching in Namikawa that acrylic polymers provide a cleaning layer that exhibits the desired adhesive strength, it is submitted that one of ordinary skill in the art would not be led to modify Terada to use a polyimide instead of an acrylic polymer.

As reiterated in KSR, "a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art." *KSR*, 550 U.S. at 82 USPQ2d at 1396. Instead, the key to supporting any rejection under 35 U.S.C. §103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. It is submitted that there is no apparent reason to modify Terada as proposed by the Examiner, and the Examiner has failed to provide a rational reason as to why a person of ordinary skill in the art would be motivated to do so, other than the mere fact that Namikawa mentions the term "polyimide" in its disclosure.

Regarding the Examiner's assertion that poly(methylmethacrylate) and polyimide are "art recognized equivalents," the Examiner appears to be taking the position that simply because polyimide and poly(methylmethacrylate) are disclosed as being employable in a PSA polymer, they are equivalent.

It is submitted that the Examiner's position is contrary to MPEP §2144.06, which states "the equivalency must be recognized in the prior art, and cannot be based on applicant's

disclosure or the mere fact that the components at issue are functional or mechanical equivalents." Simply because both poly(methylmethacrylate) and polyimide can be added to a PSA polymer is insufficient to support the position that poly(methylmethacrylate) and polyimide are "equivalents". Indeed, there is no such recognition in Namikawa that polyimide and poly(methylmethacrylate) are "equivalents".

In this regard, it is noted that the Office has cautioned against the use of principles such as "art recognizable". Specifically, the Office has indicated that principles such as "art recognizable" without providing an explanation of the applicability to the facts of the present case is insufficient to establish a *prima facie* case of obviousness. *See* Federal Register Notice of September 1, 2010 at page 53645.

Furthermore, the Examiner appears to take the position that if the amount of silicone attached to said cleaning layer when the separator is peeled off said cleaning layer is 0.005g/m^2 or less, as calculated in terms of polydimethylsiloxane, then the relative intensities of each of the recited fragment ions in the cleaning layer are 0.1 or less. However, the Examiner has not provided any technical reason as to why such would be the case or any correlation/connection between the two.

Moreover, setting side whether the Examiner's assertion above is technically accurate or not, Terada does not expressly disclose the relative intensities of the claimed fragment ions. Terada also does not disclose the use of polyimide, and Namikawa neither contains an Example where polyimide is used nor mentions silicone. Thus, it is submitted that one of ordinary skill in the art would not reasonably expect each of the relative intensities of the recited fragment ions in the cleaning layer to be within the claimed ranges based on Terada and/or Namikawa.

For at least the foregoing reasons, it is respectfully submitted that a *prima facie* case of obviousness has not been established, and that claims 5 and 8 are patentable over the cited art.

In addition, claims 9, 20 and 23 depend from claim 5 or 8, and thus it is submitted that these claims are patentable for at least the same reasons as claim 5 or 8.

Accordingly, it is respectfully submitted that the obviousness rejection should be reversed.

B. The nonstatutory obviousness-type double patenting rejection of claims 5, 8-9, 20 and 23 over claim 14 of U.S. 7,575,790 in view of Namikawa should be reversed.

With respect to the obviousness-type double patenting rejection over US 7,575,790 in view of Namikawa, Applicants traverses the rejection for the reasons set forth above. That is, since the '790 patent corresponds to Terada, Applicants respectfully submit that claims 5, 8-9, 20 and 23 are not obvious over claim 14 of the '790 patent in view of Namikawa for the reasons discussed above.

Accordingly, it is respectfully submitted that the nonstatutory obviousness-type rejection should be reversed.

VIII. CONCLUSION

The statutory fee (37 C.F.R. §41.37(a) and 1.17(c)) is being remitted. The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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CUSTOMER NUMBER

Date: January 28, 2011

/Keiko K. Takagi/
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CLAIMS APPENDIX

CLAIMS 5, 8-9, 20 and 23 ON APPEAL:

5. A carrying member with a cleaning function, comprising a carrying member and a cleaning sheet comprising a support, a cleaning layer provided on one side of the support, an adhesive layer provided on the other side of the support, and a releasable protective film laminated directly on the cleaning layer,

wherein the cleaning layer comprises a polyimide resin which is heat-resistant, and a releasable protective film laminated on the cleaning layer, wherein each of the relative intensities of the fragment ions of CH_3Si^+ , $\text{C}_3\text{H}_9\text{Si}^+$, $\text{C}_5\text{H}_{15}\text{Si}_2\text{O}^+$, $\text{C}_5\text{H}_{15}\text{Si}_3\text{O}_3^+$, $\text{C}_7\text{H}_{21}\text{Si}_3\text{O}_2^+$, CH_3SiO^- , $\text{CH}_3\text{SiO}_2^-$ and Si^+ in the cleaning layer, when the protective film is peeled off the cleaning layer, is 0.1 or less according to time-of-flight secondary ion mass spectrometry, relative to C_2H_3^+ in the case of positive ion or O^- in the case of negative ion,

wherein the cleaning layer has a tensile modulus of 10 MPa or more as determined according to JIS K7127 and exhibits an adhesive strength of 0.2N/10 mm width or less when peeled off a silicon wafer at an angle of 180° as determined according to JIS Z0237,

wherein the cleaning sheet is laminated on the carrying member through an adhesive layer,

wherein the carrying member is a semiconductor wafer or base for a flat panel display, and

wherein the releasable protective film is a polyolefin-based film comprising polyethylene, polypropylene, polybutene, polybutadiene or polymethylpentene.

8. A carrying member with a cleaning function, comprising a carrying member and a cleaning layer comprising a polyimide resin which is heat-resistant provided on at least one side of the carrying member, wherein each of the relative intensities of the fragment ions of CH_3Si^+ ,

$C_3H_9Si^+$, $C_5H_{15}Si_2O^+$, $C_5H_{15}Si_3O_3^+$, $C_7H_{21}Si_3O_2^+$, CH_3SiO^- , $CH_3SiO_2^-$ and Si^+ in the cleaning layer is 0.1 or less according to time-of-flight secondary ion mass spectrometry, relative to $C_2H_3^+$ in the case of positive ion or O^- in the case of negative ion,

wherein the cleaning layer has a tensile modulus of 10 MPa or more as determined according to JIS K7127 and exhibits an adhesive strength of 0.2N/10 mm width or less when peeled off a silicon wafer at an angle of 180° as determined according to JIS Z0237,

wherein the carrying member is a semiconductor wafer or base for a flat panel display, and

wherein a releasable protective film is laminated directly on the cleaning layer and the releasable protective film is a polyolefin-based film comprising polyethylene, polypropylene, polybutene, polybutadiene or polymethylpentene.

9. (original): The carrying member according to claim 8, wherein the cleaning layer has substantially no adhesive strength.

20. The carrying member according to claim 8, wherein the releasable protective film is a film which has been treated with a silicone-based, a long-chain alkyl-based, a fluorine-based, an aliphatic acid amide-based or a silica-based release agent.

23. The carrying member according to claim 5, wherein the releasable protective film is a film which has been treated with a silicone-based, a long-chain alkyl-based, a fluorine-based, an aliphatic acid amide-based or a silica-based release agent.

EVIDENCE APPENDIX

Pursuant to 37 C.F.R. § 41.37(c)(1)(ix), submitted herewith are copies of any evidence submitted pursuant to 37 C.F.R. §§ 1.130, 1.131, or 1.132 or any other evidence entered by the Examiner and relied upon by Appellant in the appeal.

None.

RELATED PROCEEDINGS APPENDIX

Submitted herewith are copies of decisions rendered by a court or the Board in any proceeding identified above in Section II pursuant to 37 C.F.R. § 41.37(c)(1)(ii).

None.